AIUM Practice Guideline for the Performance of Pelvic Ultrasound Examinations
The American Institute of Ultrasound in Medicine (AIUM) is a multidisciplinary association dedicated to advancing the safe and effective use of ultrasound in medicine through professional and public education, research, development of guidelines, and accreditation. To promote this mission, the AIUM is pleased to publish, in conjunction with the American College of Radiology (ACR), the American College of Obstetricians and Gynecologists (ACOG), and the Society of Radiologists in Ultrasound (SRU), this AIUM Practice Guideline for the Performance of Pelvic Ultrasound Examinations. We are indebted to the many volunteers who contributed their time, knowledge, and energy to bringing this document to completion.

The AIUM represents the entire range of clinical and basic science interests in medical diagnostic ultrasound, and, with hundreds of volunteers, the AIUM has promoted the safe and effective use of ultrasound in clinical medicine for more than 50 years. This document and others like it will continue to advance this mission.

Practice guidelines of the AIUM are intended to provide the medical ultrasound community with guidelines for the performance and recording of high-quality ultrasound examinations. The guidelines reflect what the AIUM considers the minimum criteria for a complete examination in each area but are not intended to establish a legal standard of care. AIUM-accredited practices are expected to generally follow the guidelines with recognition that deviations from these guidelines will be needed in some cases, depending on patient needs and available equipment. Practices are encouraged to go beyond the guidelines to provide additional service and information as needed.
I. Introduction
The clinical aspects contained in specific sections of this guideline (Introduction, Indications, Specifications of the Examination, and Equipment Specifications) were developed collaboratively by the American Institute of Ultrasound in Medicine (AIUM), the American College of Radiology (ACR), the American College of Obstetricians and Gynecologists (ACOG), and the Society of Radiologists in Ultrasound (SRU). Recommendations for physician requirements, the written request for the examination, documentation, and quality control vary among these organizations and are addressed by each separately.

This guideline has been developed to assist physicians performing sonographic studies of the female pelvis. Ultrasound examinations of the female pelvis should be performed only when there is a valid medical reason, and the lowest possible ultrasonic exposure settings should be used to gain the necessary diagnostic information. In some cases, additional or specialized examinations may be necessary. While it is not possible to detect every abnormality, adherence to the following guideline will maximize the probability of detecting most abnormalities.

II. Indications
Indications for pelvic sonography include but are not limited to the following:

1. Pelvic pain;
2. Dysmenorrhea (painful menses);
3. Amenorrhea;
4. Menorrhagia (excessive menstrual bleeding);
5. Metrorrhagia (irregular uterine bleeding);
6. Menometrorrhagia (excessive irregular bleeding);
7. Follow-up of a previously detected abnormality;
8. Evaluation, monitoring, and/or treatment of infertility patients;
9. Delayed menses, precocious puberty, or vaginal bleeding in a prepubertal child;
10. Postmenopausal bleeding;
11. Abnormal or technically limited pelvic examination;
12. Signs or symptoms of pelvic infection;
13. Further characterization of a pelvic abnormality noted on another imaging study;
14. Evaluation of congenital anomalies;
15. Excessive bleeding, pain, or signs of infection after pelvic surgery, delivery, or abortion;
16. Localization of an intrauterine contraceptive device;
17. Screening for malignancy in patients at increased risk;
18. Urinary incontinence or pelvic organ prolapse; and

III. Qualifications of Personnel
See the AIUM Official Statement Training Guidelines for Physicians Who Evaluate and Interpret Diagnostic Ultrasound Examinations and the AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices.

IV. Written Request for the Examination
The written or electronic request for an ultrasound examination should provide sufficient information to allow for the appropriate performance and interpretation of the examination.

The request for the examination must be originated by a physician or other appropriately licensed health care provider or under their direction. The accompanying clinical information should be provided by a physician or other appropriate health care provider familiar with the patient's clinical situation and should be consistent with relevant legal and local health care facility requirements.

V. Specifications of the Examination
This section details the examination to be performed for each organ and anatomic region in the female pelvis. All relevant structures should be identified by a transabdominal and/or transvaginal approach. In some cases, both will be needed. A transrectal or transperineal approach may be useful in patients who are not candidates for introduction of a vaginal probe and in assessing the patient with pelvic organ prolapse.

A. General Pelvic Preparation
For a complete transabdominal pelvic sonogram, the patient's bladder should, in general, be distended adequately to displace the small bowel from the field of view. Occasionally, overdistention of the bladder may compromise the evaluation. When this occurs, imaging may be repeated after the patient partially empties the bladder.
For a transvaginal sonogram, the urinary bladder is preferably empty. The patient, the sonographer, or the physician may introduce the vaginal transducer, preferably under real-time monitoring. Consideration of having a chaperone present should be in accordance with local policies.

**B. Uterus**

The vagina and uterus provide anatomic landmarks that can be used as reference points for the other pelvic structures, whether normal or abnormal. In examining the uterus, the following should be evaluated: (1) the uterine size, shape, and orientation; (2) the endometrium; (3) the myometrium; and (4) the cervix. The vagina may be imaged as a landmark for the cervix and lower uterine segment.

Overall uterine length is evaluated in the long axis from the fundus to the cervix (to the external os, if it can be identified). The depth of the uterus (anteroposterior dimension) is measured in the same long-axis view from its anterior to posterior walls, perpendicular to the length. The maximum width is measured in the transaxial or coronal view. If volume measurements of the uterine corpus are performed, the cervical component should be excluded from the uterine length measurement.

Abnormalities of the uterus should be documented. The myometrium and cervix should be evaluated for contour changes, echogenicity, masses, and cysts. Masses that may require follow-up or intervention should be measured in at least 2 dimensions, acknowledging that it is not usually necessary to measure all fibroids.

The endometrium should be analyzed for thickness, focal abnormalities, and the presence of fluid or masses in the endometrial cavity. The endometrium should be measured on a midline sagittal image, including anterior and posterior portions of the basal endometrium and excluding the adjacent hypoechoic myometrium and any endometrial fluid. Assessment of the endometrium should allow for variations expected with phases of the menstrual cycle and with hormonal supplementation. If the endometrium is difficult to image in its entirety or poorly defined, this should be reported. Sonohysterography may be a useful adjunct for evaluating the patient with abnormal or dysfunctional uterine bleeding or to further clarify an abnormally thickened endometrium. If the patient has an intrauterine contraceptive device, its location should be documented. (See the AIUM Practice Guideline for the Performance of Sonohysterography.)

**C. Adnexa Including Ovaries and Fallopian Tubes**

When evaluating the adnexa, an attempt should be made to identify the ovaries first since they can serve as a major point of reference for assessing the presence of adnexal pathology. Ovarian size may be determined by measuring the ovary in 3 dimensions (width, length, and depth), on views obtained in 2 orthogonal planes. Any ovarian abnormalities should be documented. The ovaries may not be identifiable in some females. This occurs most frequently prior to puberty, after menopause, or in the presence of a large leiomyomatous uterus. The normal fallopian tubes are not commonly identified. The adnexal region should be surveyed for abnormalities, particularly masses and dilated tubular structures.

If an adnexal abnormality is noted, its relationship to the ovaries and uterus should be assessed. The size and sonographic characteristics of adnexal masses should be documented. Spectral, color, and/or power Doppler ultrasound may be useful for evaluating the vascular characteristics of pelvic lesions.

**D. Cul-de-sac**

The cul-de-sac and bowel posterior to the uterus may not be clearly defined. This area should be evaluated for the presence of free fluid or a mass. If a mass is detected, its size, position, shape, sonographic characteristics, and relationship to the ovaries and uterus should be documented. Differentiation of normal loops of bowel from a mass may be difficult if only a transabdominal examination is performed. A transvaginal examination may be helpful to distinguish a suspected mass from fluid and feces within the normal rectosigmoid colon.

**VI. Documentation**

Adequate documentation is essential for high-quality patient care. There should be a permanent record of the ultrasound examination and its interpretation. Images of all appropriate areas, both normal and abnormal, should be recorded. Variations from normal size should be accompanied by measurements. Images should be labeled with the patient identification, facility identification, examination date, and side (right or left) of the anatomic...
site imaged. An official interpretation (final report) of the ultrasound findings should be included in the patient’s medical record. Retention of the ultrasound examination should be consistent both with clinical needs and with relevant legal and local health care facility requirements.

Reporting should be in accordance with the AIUM Practice Guideline for Documentation of an Ultrasound Examination.

VII. Equipment Specifications

The sonographic examination of the female pelvis should be conducted with a real-time scanner, preferably using sector, curved linear, and/or endovaginal transducers. The transducer or scanner should be adjusted to operate at the highest clinically appropriate frequency, realizing that there is a trade-off between resolution and beam penetration. With modern equipment, studies performed from the anterior abdominal wall can usually use frequencies of 3.5 MHz or higher, while scans performed from the vagina should use frequencies of 5 MHz or higher.1

VIII. Quality Control and Improvement, Safety, Infection Control, and Patient Education

Policies and procedures related to quality control, patient education, infection control, and safety should be developed and implemented in accordance with the AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices.

Equipment performance monitoring should be in accordance with the AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices.

IX. As Low as Reasonably Achievable Principle

The potential benefits and risks of each examination should be considered. The as low as reasonably achievable (ALARA) principle should be observed when adjusting controls that affect the acoustic output and by considering transducer dwell times. Further details on ALARA may be found in the AIUM publication Medical Ultrasound Safety, Second Edition.

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This guideline was developed by the American Institute of Ultrasound in Medicine (AIUM) in collaboration with the American College of Radiology (ACR), the American College of Obstetricians and Gynecologists (ACOG), and the Society of Radiologists in Ultrasound (SRU) according to the process described in the AIUM Clinical Standards Committee Manual.

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